The TACTICAL LINK

Tactical Links International Program Office *Volume 2 Issue 2* *July 2004*

A FAREWELL MESSAGE FROM CAPT KOHUT

CAPT John "KOKO" Kohut, alongside a VMFA-232 F/A-18C

In the words of George Harrison, "All things must pass." As my time to pass the torch to CAPT Dave Prater as Program Manager for the Tactical Links International Program rapidly approaches (see story inside), I am reminded of the exciting events of the last three plus years and of the many outstanding people who have shaped the way our combat forces use information. There have been major developments; MIDS LVT production in both the US and Europe, F/A-18 OPEVAL and subsequent resolution and verification, fleet deployment and operational use of MIDS on the F-15 and F/A-18, and initiation of EuroFighter (Typhoon) operational testing with MIDS. Yet, the truly remarkable events have resulted from innovation in the use of our expanding tactical networks by developers, integrators, testers, and the growing user community. I am very happy to say that ***The Tactical Link*** has become the unclassified media to exchange these ideas.

I am particularly pleased that my colleagues, LtCol Anita Latin, the USAF TGN Squadron Commander, and Mr. Ian Anthony, UK's TDL Integrated Project Team Leader, have joined me in introducing previous issues. This highlights the growing alignment and teamwork that has accelerated our operational capability to use information decisively and globally. In this issue, our fifth, you will find a fascinating diversity of thought provoking articles from our warriors, our testers and our acquisition corps. Being a fighter guy, I'm quite excited by the article on SMART Tankers with ROBEs (gas and brains, what a concept). Mr. Arnaud Demichelis graphically captures the proud moment for Mr. Mario Volpicelli, president of EuroMIDS, and the EuroMIDS partners as they roll out the first European built MIDS production terminal. All US Link-16 operators should be relieved by the news on changes to the frequency clearance process. LtCol Nilsson's experience with EPAF F-16 "lead the fleet" MIDS testing and LT Snodgrass' description of F/A-18C MIDS deployment serve to show the truly global nature of Link-16. And finally, a surprising expose of a Hollywood legend's contribution to tactical links development. I'd like to thank our editor, all of the authors and the editorial staff for putting together this high quality mouthpiece for our community.

The future is certainly bright, but filled with challenge. As we expand the capabilities of our deployed Link-16 (and soon Link-22) users, enable more consistent platform implementation through Common Link Integration Processing (CLIP) and the Integrated Architecture Behavior Model (IABM), transition terminals into Joint Tactical Radio System (JTRS) compliance and develop more robust and capable networking waveforms, our challenges will be less technology and more terminology. The convergence of joint planning and joint data networks, the merging of real-time, near real-time and higher latency command and control systems is upon us now. What organizations should lead their development and how we should characterize the resultant information paths will likely confound those that seek to control programs. Cooperation and collaboration, rather than turf wars, will be the keys to progress. Our community is coming together in many ways, but perhaps the most important is the growth of the International Data Link Society (IDLS), our means to globally connect and progress. I encourage you all to get involved in it, and I look forward to seeing you all at IDLS 2004 in San Diego.

Inside this issue:

SMART Tankers With ROBEs

Contributed by: Edward Anzalone, ABACUS Technology, Hanscom AFB

Doing Business with "TEXACO," the KC-135 Stratotanker

A new mission for the venerable KC-135 brings "TEXACO" into the fight using technology previously reserved for Communications, Command, Control and Intelligence (C3I) platforms. The new millennium, particularly the "War on Terror," has brought new military challenges. Hardware and capabilities developed to defeat an "Evil Empire" are frequently ill suited against today's threat. Decreased military spending, coupled with a decade of force reductions, have added to the challenges. Commanders recognize that ingenuity and innovation are requisite to the solution. One approach is to integrate emerging technologies into legacy weapons systems, adding new capabilities at minimum cost. An example is the Air Force Scaleable Multi-Function Automated Relay Terminal (SMART) Tanker program managed by the Electronic Systems Center (ESC) at Hanscom Air Force Base, Massachusetts.

SMART Tankers will be configured to specific missions. SATCOM, Link-16, future spirals for Link-11A/B, and the Situational Awareness Data Link will give mission planners options never before available. Reconnaissance, intelligence and sensor information-sharing between friendly forces operating in and out of theater will be enhanced.

The main technology of the SMART Tanker program is a mission-configurable, man-portable Link-16 system that can be quickly installed or removed from an aircraft. Known as the Roll-On Beyond Line-of-Sight (BLOS) Enhancement (ROBE), this $30M system integrates a Multifunctional Information Distribution System (MIDS)-Low Volume Terminal 3 (LVT-3) for Link-16 network access, an AN/ARC-210 satellite radio for worldwide data transfers, a Global Positioning System receiver for navigation and precision clocking, and a modified laptop computer Gateway Manager. The result is a 140-pound, palletized system (four stackable transfer cases) that can be secured to the aircraft's cargo deck using standard cargo hold-downs. ROBE does not interfere with the aircraft's ability to handle cargo nor does it increase tanker crew size. ROBE will be installed, keyed and brought on-line as part of aircraft pre-flight, and will function unattended during flight. Currently, forty KC-135R tankers at McConnell, Grand Forks and Fairchild Air Force Bases have been modified to accommodate ROBE. This includes three new antennas, a panel that provides primary operating voltages, and an antenna interface.

Operationally, the ROBE system enters the Link-16 network and performs three critical functions:

- ***Passes network data to all network members.***
- ***Acts as a Link-16 relay, giving forces beyond line-of-sight of the theater the ability to enter or remain in the network.***
- ***Up-links network data to a communications satellite that can be downloaded through a similar gateway to a parallel network anywhere on earth, in virtual real time, giving rear echelon commanders an unprecedented view of the battlefield.***

Air Force Lt Brian Walburn, ROBE Program Manager at the ESC, said in a recent interview, "The tanker's mission has always been of paramount importance in that it allows commanders to bring air power to bear on virtually any theater of operations and to keep it there. ROBE multiplies that importance by an order of magnitude and gives the tanker a more active role in the fray."

Future upgrades envision a remote-control capability, allowing manipulation by a ground station, among others. Operators in a net control center, such as an Air Operations Center or a Command Post, will be able to filter data moving through the gateway and network, keeping it from becoming overloaded with unnecessary information.

In an era where flexibility is the watchword and information is a weapon, the SMART tanker will be a truly important asset. As we move toward a Single Integrated Battle Management Picture, the role of the SMART Tanker will continue to expand, limited only by the imagination of the planners.

EuroMIDS First MIDS-LVT Delivery

Contributed by: Arnaud Demichelis, EuroMIDS Program Integrator, MIDS IPO, San Diego, California

On March 26, 2004 a major milestone of the Multifunctional Information Distribution System - Low Volume Terminal (MIDS-LVT) program was achieved. The European international manufacturing consortium, EuroMIDS, delivered its first production MIDS-LVT to the MIDS International Program Office (IPO) at the Program Executive Office C4I & Space in San Diego, California. This delivery was officially celebrated at the Marconi Selenia Communications plant in Latina, Italy, where all EuroMIDS terminals undergo final integration.

EuroMIDS production marks the establishment of three independent, qualified MIDS-LVT production lines, a goal several years in the making. EuroMIDS joins US manufacturers ViaSat and Data Link Solutions (DLS).

This delivery is the first of 346 terminals to be delivered by EuroMIDS, a consortium established in 2000 by four of the leading European defence companies: Thales Communications (France), Marconi Selenia Communications (Italy), EADS Deutschland (Germany) and Indra (Spain).

The MIDS IPO and SPAWAR contracts team in San Diego played a significant role in the initial successful EuroMIDS MID-LVT delivery. They provided oversight of the test and qualification effort and contract and financial management functions. The technical guidance and program management support they provided proved vital in shepherding the program through the challenging three-year production and qualification phase.

The EuroMIDS terminal delivery marks a major achievement and a major step in enhancing interoperability between coalition military forces, and sets a new standard for cooperative development partnerships worldwide.

CAPT John Kohut joins EuroMIDS' company representatives in unveiling their first delivered terminal. L/R: Mario Damiani (Marconi Selenia Communications), Joaquin Uguet (Indra), Jean-Jacques Guittard (Thales), Peter Schlote (EADS) and Mario Volpicelli, President of EuroMIDS.

Welcome Aboard .....

CAPT DAVID L. PRATER

CAPT Dave "Slammy" Prater, USN, is to become Program Executive Office (PEO) C4I & Space's new Tactical Links International Program Manager, PMW-199. The Change of Command from CAPT Kohut to CAPT Prater is planned for 29 July 2004 aboard the San Diego Aircraft Carrier Museum Midway.

CAPT Prater was most recently assigned as the Weapons Integration Integrated Product Team (IPT) lead at the Joint Strike Fighter (JSF) Program Office. His Weapons Integration IPT was responsible for all aspects of armament integration and certification on this massive Joint Service and international cooperative program. In the prior phase of the JSF program, he served as the X-32 Program Manager during completion of Concept Development Phase flight test. He is a recent graduate of the Industrial College of the Armed Forces' Class of 2001, where he completed the school's Senior Acquisition Course and was a member of the Munitions Industry study. Prior to this assignment, CAPT Prater was the Defense Contract Management Agency (DCMA) Boeing-Seattle JSF Program Integrator, where he led a contractor-based team responsible for contract administration, technical insight and foreign disclosure review.

Before transitioning to the acquisition workforce as an Aeronautical Engineering Duty Officer, CAPT Prater served as both an operational F/A-18 pilot and test pilot. He has completed three deployments to the Persian Gulf and Indian Ocean where he participated in Operation Southern Watch, patrolling the skies of southern Iraq, and Operation Earnest Will, escorting Kuwaiti tankers through the Straits of Hormuz. CAPT Prater has fulfilled the gamut of squadron duties, including squadron maintenance officer, operations officer, administrative officer and nuclear safety officer. As a test pilot, CAPT Prater was project officer for a variety of flying qualities and performance enhancements related to the F/A-18, including the Controls Released Departure Evaluation, the Enhanced Performance Engine Evaluation, and an evaluation of the NASA High Alpha Research Vehicle. As the Pacific Fleet F/A-18 Readiness and Requirements officer, CAPT Prater was responsible for the resource coordination and requirements representation of all West Coast F/A-18 squadrons. CAPT Prater has amassed over 2600 flight hours and 425 carrier arrestments.

CAPT Prater was raised in Kansas City, Missouri, and, as the son of a Trans World Airlines employee, lived on overseas assignment for four years in Jeddah, Saudi Arabia. Graduating from Park Hill High School in 1979, he accepted a Navy Reserve Officer Training Corps (ROTC) scholarship to the University of Utah. He graduated Magna Cum Laude as a Distinguished Midshipman Graduate while serving as Midshipmen Battalion Commander.

SLAMMY from Missouri:

- ***Weapons IPT lead at the JSF Program Office***
- ***Industrial College of the Armed Forces - 2001***
- ***DCMA JSF Program Integrator***
- ***F/A-18 Operational and Test Pilot - Over 2600 flight hours and 425 carrier arrestments***
- ***Served in the Persian Gulf and Indian Ocean***
- ***F/A-18 Readiness & Requirements Officer***
- ***University of Utah - Magna Cum Laude***
- ***Major Medal Awards:***
  - *Defense Meritorious Service*
  - *Meritorious Service*
  - *Navy Commendation*
  - *Navy Achievement*

Learning the Basics - The New "Introduction to TDLs" Course

Contributed by: LTJG Scott Halsey, CSCS, Pt. Loma, California

FOLLOW-ON TDL TRAINING COURSES:

- ***US Navy Platforms Link Capabilities and Limitations***
- ***Introduction to Link-4A***
- ***Introduction to Link-11***
- ***Link-11 Network Operations***
- ***Introduction to Link-16***
- ***Introduction to SAT Link-16***
- ***Introduction to Cooperative Engagement Capability Identification procedures***

A new "Introduction to Tactical Data Links (TDLs)" course has been developed based on the Bottom Up Review (BUR) of TDL training previously reported in the April issue of ***The Tactical Link*** Newsletter. Conducted by the Center for Surface Combat Systems (CSCS), the BUR concluded there needed to be a clearly defined path that creates true TDL expertise. The new course is the first step in a TDL continuum that will also include Track Data Coordinator, Interface Control Officer, Link Response Training Team, and Strike Group Multi-TDL Team Trainer.

The TDL introduction class provides officer and enlisted Combat Information Center/Combat Direction Center watch-standers with the fundamentals required to interpret TDL information. Designed as the foundation course, it has been designated as a prerequisite to follow-on TDL training courses.

Introduction to TDLs is taught monthly at CSCS Detachment Pt. Loma, California and Dam Neck, Virginia. In response to requirements for an increased number of graduates, instructors at the AEGIS Training Readiness Center (ATRC) Detachments will be certified to conduct the Introduction to TDLs course starting this summer.

The long-term plan is to convert the current 3-day introductory course to Computer-Based Training (CBT) and distribute Fleet-wide and on-line. The widespread distribution and availability of fundamental TDL information will enable every new officer, and sailor an opportunity to gain Link 101/201 knowledge levels. With CBT, training commands will have a training tool available at any point in a sailor's career. Utilization of common, distributed CBT may also reduce the requirement to deliver this training in a schoolhouse environment. Additionally, this training application will support five-vector professional development; allowing fleet personnel on-line access to material resulting in the right training, to the right person, at the right time.

Quotas for the Introduction to TDLs course can be requested on the West Coast by contacting quota control at (619) 556-0594 and (757) 492-6847 for East Coast scheduling.

TACTICAL LINK UPCOMING EVENTS

Change of Command (CAPTs Kohut/Prater)	29 July	San Diego, CA
MIDS Fleet Interface Syndicate - TDL (FIS-T)	3-6 Aug	San Diego, CA
Joint International Configuration Review Board (JICRB) / MIDS International Review Board (MIRB)	13-17 Sept	Boston, MA
NATO Improved Link Eleven (NILE) Steering Committee	21-23 Sept	Ottawa, Canada
International Data Links Society (IDLS) Meeting	19-21 Oct	San Diego, CA

Acquisition Strategy - The ADSI JWG Perspective

Contributed by: 1stLt John S. McAfee, Former AF ADSI Program Manager, Hanscom AFB

COTS technology allows cperators to pull what they need from the market place

Reduce interoperability issues—acquire jointly!

The Air Defense Systems Integrator (ADSI) is the culmination of a twelve-year effort to bring connectivity and interoperability to warfighters by providing real-time, decision-quality information to the Joint Forces Air Component Commander, among others. ADSI integrates tactical data links, radar data, and intelligence into one common tactical picture. Together, Joint, Interagency and Coalition forces will have 350 operational ADSIs. ADSI is a powerful example of new wave acquisition that contributes to the warfighters' ability to fight and win.

The ADSI acquisition combines militarized commercial-off-the-shelf (COTS) technology with government resources. Recent acquisition trends move from a stove-piped "tech-push" mentality to a less directive "market pull" approach. If operator's needs are flexible enough to allow use of available technology, then warfighters' requirements will migrate and be met by COTS technology, thus actively spawning creative application and "pulling" them along.

ADSI was not a program of record. It had no service sponsorship, no specific requirement and was not directly budgeted. ADSI exists because user requirements resounded for a system that grew with evolving technologies and threat arena. ADSI is the outgrowth of an interdependent relationship involving operators, acquirers, testers, and contractors, all focused to provide capability to the warfighter. These relationships coalesce in the ADSI Joint Working Group (JWG). Established in 1999, the JWG exercises programmatic control and configuration management of the system. The JWG acquisition strategy for ADSI won the Federal Acquisition Awards Business Solutions in the Public Interest sponsored by the Council for Excellence in Government and the Office of Federal Procurement Policy for 2003.

A charter outlining stakeholder organization responsibilities provides the framework and stability from which the capability can grow and spiral. The charter delineates roles and responsibilities to ensure that program management is executed at the joint, coalition, and interagency levels. By organizing the parties with vested interests into one cooperative working group, resources can be consolidated to share costs on expensive enhancements and to ensure all benefit from system developments. For example, the Navy purchased Beyond-Line-of-Sight Link-16 capability, which is now an ADSI capability.

Additionally, testing and certification efforts can be leveraged. Individual testing by different services can be avoided by incorporating all test requirements into a single service level test. Joint Interoperability Test Command certification is considered sufficient for Australia, Canada, and the United Kingdom. The JWG has established a continuous testing doctrine to address the full spectrum of operator concerns across all services, agencies, and allies, which significantly increases confidence in the system.

Another advantage is the reduction of sustainment costs. For example, a software bug corrected in Air Force Combined Air Operations Center is also corrected in an Army Air Defense Brigade for the price of one fix.

Since the COTS-based ADSI is constantly technology refreshed under the guidance of the JWG, it is not destined to become a legacy system, and has no defined program termination

Continued on Page 7

Joint ADSI

Acquisition Strategy, Cont

point. Training is also jointly integrated as the services incorporate to increase interoperability.

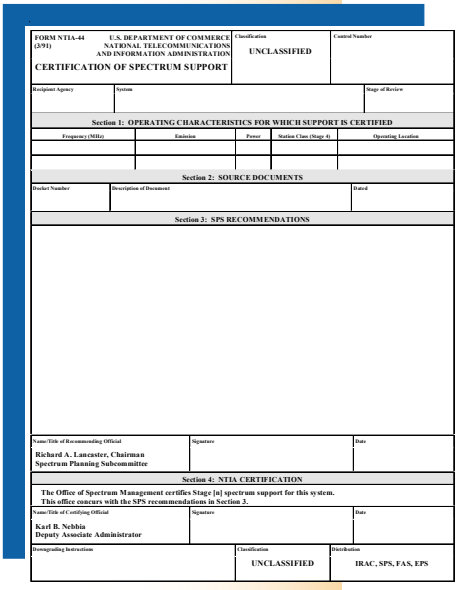
Without a specific requirement, funding was and is a constant battle. Every dollar allocated after legitimate justification is efficiently and effectively spent through the cooperation of the JWG participants. What is lacking in funding is made up for through innovation and cooperation. Tight funding results in a thorough justification process. This helps ensure that resources are focused on capability. The struggle for funding is a purifying exercise that truly balances the program.

Finally, because nobody truly owns the systems, everyone owns it. If ADSI was solely an Air Force system, the Navy (or any other organization) would have a less compelling interest to help sustain, test, or develop ADSI's capabilities knowing another service was solely responsible. Such a breakdown of interoperability at the management level would inevitably lead to a breakdown of interoperability at the system level. ADSI is an excellent example of reducing interoperability issues by acquiring jointly.

FAA Requirements Relaxed For Link-16 Training

Contributed by: Tien Ngo, Joint and Allied Systems Implementation, PEO C4I & Space, San Diego, California

A recently signed National Telecommunications and Information Administration (NTIA) Link-16 Spectrum Certification enhances the realism of Link-16 training by eliminating numerous long-standing coordination requirements with the Federal Aviation Administration (FAA). The only requirements now are frequency assignment and internal coordination within the Department of Defense (DoD).



FORM NTIA-44 (3/91) U.S. DEPARTMENT OF COMMERCE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION

CERTIFICATION OF SPECTRUM SUPPORT

Classification: UNCLASSIFIED

Control Number

Recipient Agency | System | Stage of Review

Section 1: OPERATING CHARACTERISTICS FOR WHICH SUPPORT IS CERTIFIED

Frequency (MHz)	Emission	Power	Station Class (Stage 4)	Operating Location

Section 2: SOURCE DOCUMENTS

Docket Number	Description of Document	Dated

Section 3: SPS RECOMMENDATIONS

Name/Title of Recommending Official	Signature	Date
Richard A. Lancaster, Chairman Spectrum Planning Subcommittee		

Section 4: NTIA CERTIFICATION

The Office of Spectrum Management certifies Stage [n] spectrum support for this system. This office concurs with the SPS recommendations in Section 3.

Name/Title of Certifying Official	Signature	Date
Karl B. Nebbia Deputy Associate Administrator		

Downgrading Instructions	Classification	Distribution
	UNCLASSIFIED	IRAC, SPS, FAS, EPS

Certification of Spectrum Support

The new certification reduces the 100% time slot duty factor (TSDF) management range from 200 to 100 nautical miles. This change will accommodate the increasing numbers of uncoordinated exercises associated with the increasing numbers of terminals and platforms.

For forces that must operate and train close to air traffic control (ATC) systems and airports, the new certification relaxes the Link-16 and ATC separation distances. The certification now accommodates J-Voice and contention access operations. The allowable conditions now exceed the earlier limits contained in the Multi-National Working Group (MNWG) JTIDS Common Frequency Clearance criteria. Additionally, use by helicopters is authorized. These improvements clearly establish the US certification as the most accommodating in the multi-national Link-16 user community.

Also, the requirement for Link-16 transmissions to be beyond radio line-of-sight from FAA Precision Distance Measuring Equipment (DME/P) beacons no longer applies. Allowable received Link-16 power limits at a narrowband DME/N beacon have been increased for terminals transmitting 20% TSDF or less. This change now can accommodate Link-16 terminal operations on most runways and taxiways with commercial ATC systems nearby. A major agreement was also obtained for compatibility criteria for co-located Link-16 and Identification Friend or Foe avionics transponders; there is no longer a "no effect" restriction in place.

The new certification applies to Link-16 operations in the US National Airspace System. The new certification provides significantly greater flexibility in planning day-to-day training operations, and virtually eliminates the time and cost of pre-coordination of routine operations with the FAA. It culminates years of effort by a host of people within the DoD to resolve the many associated issues, and will certainly have a positive impact on Link-16 training for years to come.

CMS Database - Home to MIDS Configuration

Contributed by: Gerhard Geis, Division Chief, MIDS Configuration/Data Management, MIDS IPO, San Diego, California

Log into EMS:

https://www.mids-ems.net

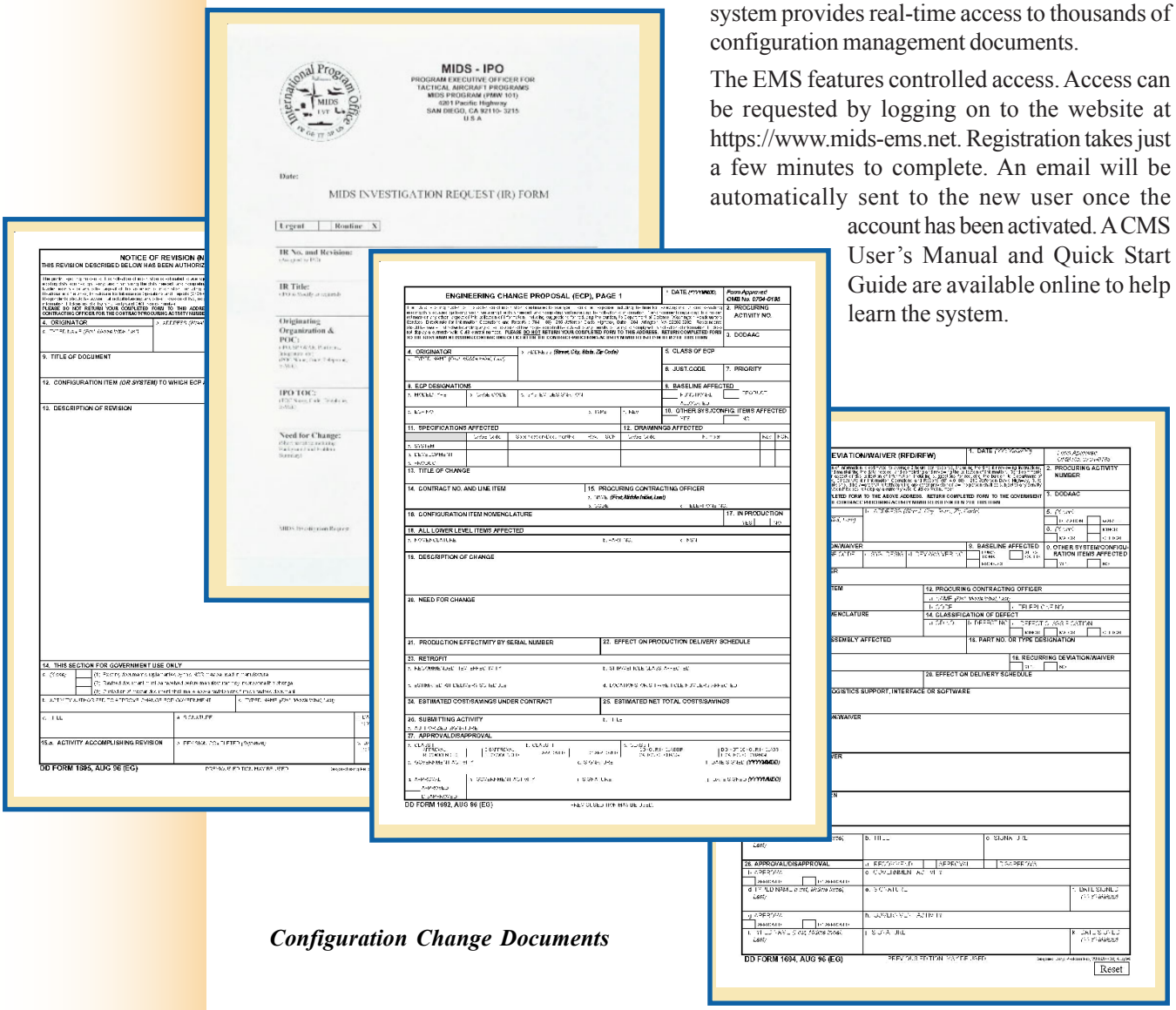
The Multifunctional Information Distribution System (MIDS) Configuration Management System (CMS) is now part of the MIDS Enterprise Management System (EMS). The EMS is the home for both the CMS and the MIDS Internet Problem Tracking Database (IPTDB)

The CMS has been designed to improve the tracking of all MIDS configuration change documents. Engineering Change Proposals, Notices of Revision, Requests for Deviation/ Waivers and Investigation Requests are now tracked in one location, which provides a single, secure site for users to track, review and record technical comments. This means the review and approval cycle will no longer be tracked in separate spreadsheets and VPO sites.

CMS users can log into the database and easily access any document. Their comments and concurrences are posted directly into the CMS, which gives other users ready access to the current review status of any item. The system sends out email notifications to the users, informing them when a new comment or concurrence has been posted.

As an online database, the CMS can be accessed from any Internet connection, which makes it an ideal solution to support the MIDS five member nations: France, Germany, Italy, Spain, and the United States, and a worldwide user base. The system provides real-time access to thousands of configuration management documents.

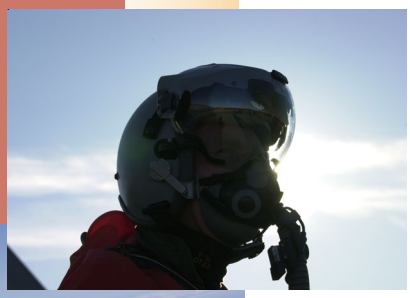
The EMS features controlled access. Access can be requested by logging on to the website at https://www.mids-ems.net. Registration takes just a few minutes to complete. An email will be automatically sent to the new user once the account has been activated. A CMS User's Manual and Quick Start Guide are available online to help learn the system.



Configuration Change Documents

Success In Norway! European F-16s Link-16 OT&E

Contributed by: LtCol Stig "Whip" Nilsson, Royal Norwegian Air Force, F-16 M3 OT&E1 Test director



The European F-16 with the current M3 upgrade has become one of the most capable fighter aircraft in the world.

The M3 upgrade includes three major elements; Inertial Aided Munitions (IAM) weapons, a Helmet Mounted Cuing System (HMCS) and Link-16. IAM weapons, such as GBU31 Joint Direct Attack Munition (JDAM), provide an all-weather bombing capability. HMCS, also known as JHMCS, provides High Off Bore-Sight employment of air-to-air missiles. This system is highly effective in close air support missions, enhancing the pilot's ability to visually acquire the target. Finally, the M3 upgrade includes Link-16, which vastly enhances situational awareness without voice communication. Link-16 operates alongside the already installed Intra-flight Data Modem, a smaller data link system for intra flight and coordination with ground elements such as forward air controllers.

European Participating Air Forces (EPAF) at Orland Air Base, Norway conducted M3 operational test and evaluation (OT&E) in March 2004. The EPAF nations that participated in this OT&E included Belgium, Denmark, the Netherlands, and Norway. The M3 OT&E involved ten Lead the Fleet (prototype) F-16s with deployed national support teams from each EPAF nation, support aircraft, various assets and approximately another 240 personnel in various phases of the test period.

Since Link-16 was the OT&E focus during the four weeks of flying, Norway was the selected base because of its available training areas and a very "Link-16 friendly" environment, with almost no potential interference to other users of the frequency spectrum. The primary focus of the Link-16 testing was to verify and evaluate interoperability with other Link-16 platforms. For this effort, NATO E-3As from Geilenkirchen, Germany, E-3Ds from Waddington, United Kingdom and part of a Patriot system from the Royal Netherlands Air Force supported the test. Test results proved that interoperability exists between the different platforms. However, it was recognized that it is important to establish regular training/exercise opportunities to share experience in Link-16 operations.

This fall, the second phase of the M3 OT&E will be conducted at Nellis Air Force Base in Las Vegas, Nevada as a part of a Red Flag Exercise. One of the most important objectives of this phase is the Link-16 interoperability with US Link-16 assets. The M3 implementation is just the starting block of Link-16 capabilities in the EPAF F-16 Fleet. In future upgrades (M4 and M5), more capabilities will be added, based on prioritized requirements and experience.

The EPAF F-16 nations, on all levels, have gained valuable experience in Link-16 operations by conducting M3 OT&E in Europe, not only from a tactical and system perspective, but also on the headquarters level where coordination, planning and tasking of link operations are taking place. As such, the F-16 M3 OT&E executed in Norway was a great success.

MEETING NEWS

MIRB - Delivering Interoperability

Contributed by: Dave Means, Third Party Sales Team Leader, PEO C4I & Space, San Diego, California

Exciting, historic and long awaited - this is how meeting chairman Navy Captain John Kohut described the inaugural Multifunctional Information Distribution System (MIDS) International Review Board (MIRB) meeting held May 7, 2004 in Tampa, Florida. With over 175 people from 16 nations in attendance, the meeting was co-located with the Joint International Configuration Review Board (JICRB).

CAPT Kohut, who heads the MIDS International Program Office (IPO), noted the diverse and common interests of the gathering. He emphasized that the MIRB is designed with the requirements and issues of MIDS customers in mind. He said that the MIRB could be a conduit for their collective voices into the MIDS configuration control processes.

During his opening remarks, CAPT Kohut outlined the history and successes of the MIDS program. He cited the recent delivery of EuroMIDS' first production terminal as an example of success. EuroMIDS, the MIDS European vendor, has now joined the MIDS production efforts with two US companies, ViaSat and Data Link Solutions (DLS). Mr. Mario Volpicelli, the president of EuroMIDS, echoed CAPT Kohut's enthusiasm over the achievement of both US and European production.

"We are delivering interoperability," said CAPT Kohut.

He continued, "I have personally seen the incredible change in capability that MIDS can bring to a wide variety of platforms. The testimony of our warfighters that have been using MIDS and Link-16 is awesome." Delegates from the five MIDS participant nations, France, Germany, Italy, Spain and the United States, also expressed their gratitude for the worldwide interest in MIDS.

This initial MIRB provided a forum for a MIDS IPO plan that culminates over two years of effort to define a process for delivering quality software and lifecycle support to the growing list of MIDS customers. The plan features three levels of support.

The first level includes the delivery of MIDS Block Cycle software only. This annual program is entitled "Block Cycle Release" (BCR).

The second level, known as the "BCR with Additional Services" (BCRAS), includes the same software release strategy, but adds MIDS IPO Configuration Management (CM) and limited engineering support, attendance at appropriate MIDS meetings, and MIRB membership. Customers seemed particularly interested in CM and related support services, other details, and MIDS documentation the MIDS IPO can provide through the BCRAS.

The third support level, called "Tailored Services," includes work beyond the scope of the BCRAS that certain customers may require in their implementation and integration of MIDS.

Support for the plan was positive, with many customer nations indicating an interest in one or more of these support levels in the near future.

The second MIRB will be held in September 2004, co-located with the JICRB, in Boston, MA. For MIRB details, please contact Mr. Dave Means @ (619) 524-7795, email david.means@navy.mil or LtCol Saverio Pieri @ (619) 524-7805, email saverio.pieri@navy.mil.

First MIDS Configured F/A-18C Deployment

Contributed by: LT Guy "Bus" Snodgrass, VFA-131, NAS Oceana, Virginia

During the summer of 2003, the "Wildcats" of VFA-131 became the first operational US Navy FA-18C "Hornet" squadron to receive a Multifunctional Information Distribution System (MIDS) Link-16 capability. The squadron began training with the regional Virginia Capes network while preparing for cruise. Later, they transitioned to an operational network during routine training workups and continued use of this network with a carrier battle group off the East Coast of the United States. Both networks provided the opportunity to train in dynamic environments and to evaluate MIDS in tactical situations.

The Wildcats and the carrier battle group deployed to the North Arabian Gulf in support of Operation Iraqi Freedom, where the operational network supported Link-16 operations. Due to the geographical location in relation to the Iraqi coast, the battle group network was controlled by a surrogate ship, serving as a Network Time Reference (NTR). Due to a single network but multiple NTR constraints, the surrogate ship's NTR was advanced several minutes from referenced time. This allowed the same network to operate in two locations concurrently.

MIDS performed well in its FA-18C implementation. The ability to provide 360-degree situational awareness to surface and airborne contacts proved invaluable. The user could easily locate airborne contacts of interest (friendly or otherwise). The Precise Participant Location Information (PPLI) proved to be a valuable aid to maintaining formation flying in difficult weather. Information could be shared quickly through a flight member's status page rather than a radio call. The addition of secure MIDS Voice or J-Voice capability also effectively added a third radio. This method was very useful in a broad-spectrum jamming environment.

Overall, the Link-16 capability has served to greatly enhance situational awareness in dynamic tactical environments. The future of Link-16 looks bright, and as the program matures it will increase the tactical capability of units in the network.

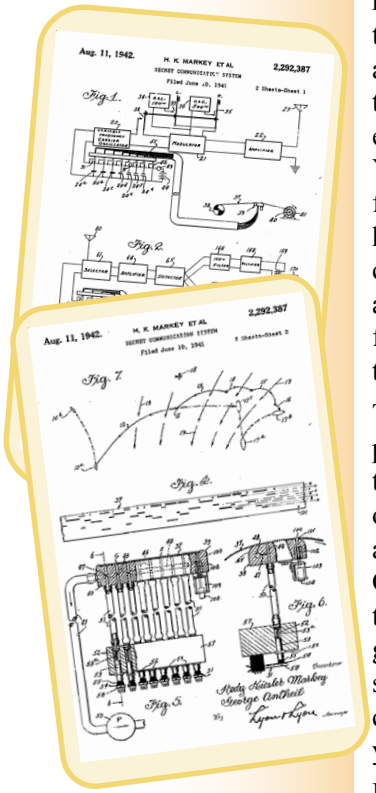
For more VFA-131 information, contact "Bus" at snodgrassgm@vfa131.navy.mil

TADL TAILS

Beyond the Stereotypes - Hollywood's Hedy Lamarr

"This invention relates broadly to secret communication systems involving the use of carrier waves of different frequencies . . ."

The beginning words of US Patent 2,292,387 may not suggest a groundbreaking concept today. But the patent issued in August 1942, less than a year after Pearl Harbor, was so far ahead of its time that its concepts were never employed during World War II. Yet, today, these same concept forms the basis of "frequency hopping," or "spread spectrum" communications, a feature of anti-jamming communications for Link-16 and cell-phone technology.



Ms. Lamarr's Original "Frequency Hopping" Patent Drawings

The persons applying for the patent were not scientists. Indeed, they were from the opposite end of the spectrum—entertainers; and not just ordinary entertainers! One was Hollywood's reigning beauty queen of the time, Hedy Lamarr. The other was an avant-garde composer, George Antheil. Their unusual scientific collaboration began at a Hollywood cocktail party in 1940, when Lamarr was only 26 years old, but already a movie star.

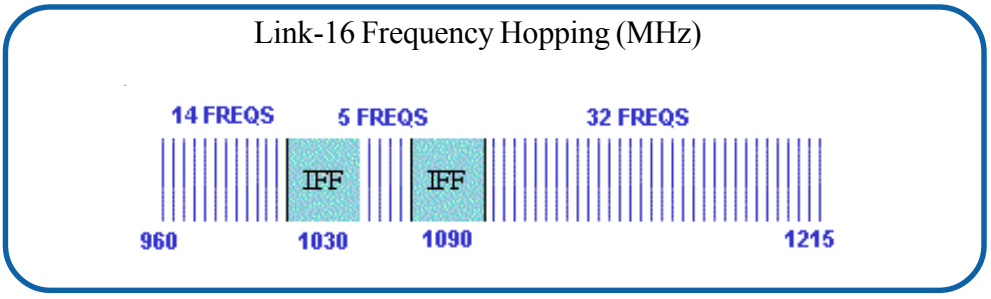
Hedy (real name Hedwig Kiesler), a native Austrian, had first made a name for herself as a teenager in the Czech film *Ecstasy,* which apparently made a lasting impression on moviegoers. Shortly afterward she married a wealthy Austrian arms manufacturer. However, "happily ever after" was not in the cards. She fled from her husband and Austrian homeland in 1937 to London. There she met American film mogul, Louis B. Mayer who signed her to a contract with MGM. Her subsequent movie career became Hollywood history.

However, behind the movies and glamour was a first-rate technical mind. Hedy had gleaned from her husband and his business associates their intent to control bombs remotely with radio signals. Hedy understood radio signals could be jammed and had the insight to recognize that if frequencies could fluctuate or "hop," jamming would be extremely difficult.

The Lamarr-Antheil patent combined her idea of frequency hopping with Antheil's technique of achieving frequency synchronization through slotted paper rolls, similar to those used on a player piano. It was 1957 before Sylvania engineers independently developed an electronic means of achieving frequency synchronization, and 1962 before a military application was found.

After the patent, Lamarr and Antheil did not promote it. For them, it was merely a contribution to the war effort. Neither of them made a dime from their patent. However, because of Lamarr's patriotism towards her adopted country, she used her glamour and celebrity to raise millions of dollars in war bonds to defeat Hitler.

Lamarr and Antheil's technical achievements were eventually recognized in 1997 with a special award from the Electronic Frontier Foundation. During the ceremonies, it was noted that Lamarr and Antheil had hoped that the military applications of their invention would play a role in the defeat of Nazi Germany. The speaker noted, "Ironically, this tool they developed to defend democracy half a century ago promises to extend democracy in the 21st century."



During transmission, radiated pulses are pseudorandomly assigned to one of the 51 authorized frequencies with no two consecutive pulses falling close together.

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US Joint Terminal Integration Maturity Review (TIMR): email ed.baumgartner@navy.mil

MIDS Enterprise Management System (EMS): https://www.mids-ems.net

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Capabilities and Limitations (C&L) Document: email cnl@phdnswc.navy.mil

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